

REMARKS

Present Status of Patent Application

Claims 1-5 were rejected. No claim is amended. New claims 6-11 has been added to more explicitly define the invention. It is believed that no new matter adds by way of these amendments made to the claims. Support for the subject matter of the newly added claims can be found in FIG. 5 which clearly illustrates that the groups (C1, C2, C3 and C4) of piezoelectric ceramic units are symmetrically positioned within the underwater wide-band electroacoustic transducer. For at least the following reasons, Applicant respectfully submits that claims 1-11 patently define over the prior art of record. Reconsideration is respectfully requested.

Response to Claims Rejections under 35 USC §102

The Office Action rejected claims 1-2 and 4-5 under 35 U.S.C. 102(b), as being anticipated by Massa et al. (US-4,439,847, hereinafter Massa).

Applicants respectfully disagree and would like to point out that it is well established that for anticipation under 35 U.S.C. 102(b), all of the elements of the claimed invention must be exactly disclosed by a single prior art reference. Independent claim 1 is not anticipated for at least the reason that Massa fails to teach, suggest or disclose every features of the claimed invention. More specifically, Massa fails to teach, suggest or disclose an underwater wide-band electroacoustic transducer comprising "***a plurality of groups of piezoelectric ceramic units, wherein each group of piezoelectric ceramic units has a different dimension and separates from each other by different distances, and the frequency response of the piezoelectric ceramic units are banded together to form a wide bandwidth response***", as required by claim 1. The advantage of arranging a plurality of groups of piezoelectric ceramic units instead of arranging a plurality of individual piezoelectric ceramic units is that a smoother frequency response can be achieved.

Instead Massa substantially teaches an underwater wide-band electroacoustic transducer comprising a plurality of **individual** ceramic transducer cylinders 4, 13, 17 and 19 that are axially and concentrically arranged. In other words, Massa fails to teach, suggest or disclose a plurality of **groups** of piezoelectric ceramic units, wherein each group of piezoelectric ceramic units has a different dimension and separated from each other by different distances. Further, Massa does not even address the issue regarding the distance between different sized ceramic cylinders [4, 13, 17, and 19]. As taught in the specification of the present application, by adjusting the distance of separation between different ceramic units, various piezoelectric ceramic units can be triggered in phase altogether (page 6, lines 11-13), and by selecting suitable dimension for the piezoelectric ceramic units and appropriate distance of separation between neighboring units, frequency response for the transducer can be adjusted (page 9, lines 10-12). Indeed, as shown in Fig. 2 of Massa, the distance between neighboring ceramic transducer cylinders 4, 13, 17 and 19 of different size appears substantially equal, which teaches against the present invention. Accordingly, Massa cannot meet the claimed invention in this regard.

For at least the foregoing reasons, Applicants respectfully submits claims 1-2 and 4-5 are not anticipated by and patently define over Massa. Reconsideration and withdrawal of these rejections is respectfully requested.

Response to Claims Rejections under 35 USC§103

The Office Action rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Massa.

Claim 3 depends from claim 1. Thus, for at least the reasons set forth above, claim 3 is also allowable over Massa. Reconsideration and withdrawal of these rejections is respectfully requested.

New Claims

New claim 6 recites features similar to that of claim 1, therefore, claim 6 is believed allowable for at least the same reasons as set forth above. Further, Massa also

fails to teach, suggest or disclose a plurality of groups of piezoelectric ceramic units are arranged symmetrically within the underwater wide-band electroacoustic transducer instead teaches that the plurality of individual ceramic cylinders are arranged concentrically (please see FIG. 2 of Massa patent) within the underwater wide-band electroacoustic transducer. Accordingly, Massa cannot meet new claim 6 in this regard. Since the remaining new claims 7-11 depend from claim 6, they also patentably define over Massa for the same reasons as set forth above as well.

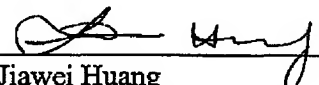
CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 1-11 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

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